

Road & Railroad Crossing Inventory Edmore Coulee & Lawton Tributary



Bureau of Reclamation
Dakotas Area Office

September 2000

Table of Contents

Topic	Page
Introduction	ii
Survey Data, Edmore Coulee	1
Survey Data, Edmore Coulee - Lawton Tributary	59
Bench Marks Used	84
Drawings	Appendix A

INTRODUCTION

The Bureau of Reclamation's Dakotas Area Office and the North Dakota State Water Commission are working together in an effort to assist the Devils Lake Joint Water Resources Board in the development and implementation of a sub-basin water management plan for the Edmore Coulee watershed. The Board requested that an inventory survey be conducted of all road/railroad crossings on the main channel of Edmore Coulee from the Belgarde Bridge upstream to Billings Lake and on 3 tributaries of Edmore Coulee. Due to funding constraints, only the main channel and one of the tributaries were included in this survey. The inventory survey was completed by the Bureau of Reclamation with funding through Reclamation's Technical Assistance to States (TATS) program.

Bureau of Reclamation surveyors collected data on the main channel of Edmore Coulee and the Lawton tributary recording the location of each crossing, the size and type of bridge or culvert, the inlet and outlet invert elevations, top of grade elevation, and relative condition of the structure. The field work was conducted in July and August of 2000.

This report includes maps of the crossing locations, photographs of downstream, upstream and center of road or railroad, survey data of the bridge deck, culvert sizes and lengths, relative condition, invert elevations, and channel elevations; in North Dakota State Plane Coordinates, North Zone, NAD 27 and elevations in NGVD 29 at all crossings. Also, a table of all recorded bench marks and temporary bench marks used in the survey control network for this project is included. The state plane coordinates, latitudes, longitudes and elevations for each bench mark are listed.

In an effort to establish comparable elevations throughout the Devils Lake area the State Water Commission has established a new local datum (refer to SWC letter dated 7-28-99) for the Devils Lake area. The new datum, SWC99, is based on the NGVD 29 datum.

The Bureau of Reclamation survey crew held the elevation of SWC99 fixed point "P 255" to assure this survey would conform to the SWC99 datum. The elevations of bench marks "P 258" and azimuth mark of station "Dry" were also held as fixed points. All surveys were performed using G.P.S. fast static and RTK survey methods. Because calibration is needed for RTK surveying, NAD83 First Order points "Rohrville" and "Groat" were held in latitude and longitude, but not in the NAD27 State Plane coordinates. They were converted by Trimble software to NAD27 even though no NAD27 points were held. This was due to the large survey area and the inherent error in NAD27. The Trimble generated coordinates can easily be converted to match any established NAD27 point by performing a coordinate translation. Temporary bench marks established by the Bureau of Reclamation for this project are marked by 5/8" rebar with plastic caps stamped "USBR".

Reclamation is able to provide this assistance to the Board and State Water Commission through its Technical Assistance program. The Technical Assistance program allows Reclamation to provide assistance to state agencies in water management evaluations they are conducting, at no cost to the state agency. The mission of the Reclamation's Dakotas Area Office is to provide technical assistance and leadership in the responsible development and management of water and related resources to enhance the quality of life in North Dakota and South Dakota.



E1 Upstream side of concrete bridge, in good condition, 6.8 feet of water (7-20-00), Section 29 & 30, T155N, R63W, N 446798.48, E 2417067.24, coulee bottom elevation 1450.7 @ ∇ of bridge.



E1 Downstream side of concrete bridge, in good condition, 4.7 feet of water (7-20-00), Section 29 & 30, T155N, R63W, N 446794.69, E 2417035.20, coulee bottom elevation 1452.8 at ∇ of bridge.



E1 Center of concrete bridge, looking south, in good condition, 32.7 feet wide & 73.9 feet long, Section 29 & 30, T155N, R63W, N 446796.54, E 2417051.20, elevation 1465.6 @ center of bridge, top of concrete.



E2 Upstream side of concrete & steel bridge, in poor condition, unusable, 5.1 feet of water (7-24-00), Section 15 & 22, T155N, R63W, N 456551.84, E 2427556.75, coulee bottom elevation 1452.9 @ \perp of bridge.



E2 Downstream side of concrete & steel bridge, in poor condition, unusable, 5.0 feet of water (7-24-00), Section 15 & 22, T155N, R63W, N 456534.25, E 2427557.36, coulee bottom elevation 1453.2 @ Φ of bridge.



E2 Center of concrete & steel bridge, looking east, in poor condition, 17.8 feet wide & 65.2 feet long, Section 15 & 22, T155N, R63W, N 456543.07, E 2427557.79, elevation 1462.8 @ center of bridge, top of concrete.



E3 Upstream side of wood & concrete bridge, in fair condition, 3.8 feet of water (7-25-00), Section 14 & 15, T155N, R63W, N 461314.18, E 2432545.23, coulee bottom elevation 1455.0 @ \perp of bridge.



E3 Downstream side of wood & concrete bridge, in fair condition, 3.8 feet of water (7-25-00), Section 14 & 15, T155N, R63W, N 461311.57, E 2432520.05, coulee bottom elevation 1455.1 @ \perp of bridge.



E3 Center of wood & concrete bridge, looking south, in fair condition, 24.3 feet wide & 80.3 feet long, Section 14 & 15, T155N, R63W, N 461312.87, E 2432532.70, elevation 1466.4 @ center of bridge, top of gravel.



E4 Upstream side of wood & concrete bridge, in fair condition, 3.7 feet of water (7-25-00), Section 12 & 13, T155N, R63W, N 462088.08, E 2438144.97, coulee bottom elevation 1456.4 @ \perp of bridge.



E4 Downstream side of wood & concrete bridge, in fair condition, 3.7 feet of water (7-25-00), Section 12 & 13, T155N, R63W, N 462050.70, E 2438146.45, coulee bottom elevation 1456.5 @ \perp of bridge.



E4 Center of wood & concrete bridge, looking west, in fair condition, 36.6 feet wide & 64.0 feet long, Section 12 & 13, T155N, R63W, N 462069.74, E 2438146.08, elevation 1471.6 @ center of bridge, top of gravel.



E5 Upstream side of concrete bridge, in good condition, 3.2 feet of water (7-25-00), Section 36 & 1, T155 & 156N, R63W, N 472697.08, E 2438756.14, coulee bottom elevation 1465.1 @ \perp of bridge.



E5 Downstream side of concrete bridge, in good condition, 3.4 feet of water (7-25-00), Section 36 & 1, T155 & 156N, R63W, N 472665.94, E 2438756.86, coulee bottom elevation 1464.9, @ \perp of bridge.



E5 Center of bridge, looking east, in good condition, 31.1 feet wide & 80.0 feet long, Section 36 & 1, T155 & 156N, R63W, N 472681.57, E 2438756.74, elevation 1481.0 @ center of bridge, top of asphalt.



E6 Upstream side of concrete bridge, in fair condition, 5.7 feet of water (7-25-00), Section 24 & 25, T 156N, R63W, N 482832.67, E 2438403.31, coulee bottom elevation 1466.8 @ \perp of bridge.



E6 Downstream side of concrete bridge, in fair condition, 4.8 feet of water (7-25-00), Section 24 & 25, T156N, R63W, N 482812.63, E 2438414.16, coulee bottom elevation 1467.5 @ \perp of bridge.



E6 Center of concrete bridge, looking west, in fair condition, 22.9 feet wide & 29.5 feet long, Section 24 & 25, T156N, R63W, N 482822.59, E 2438408.61, elevation 1481.7 @ center of bridge, top of gravel.



E7 Upstream side of wood bridge, in fair condition, 6.5 feet of water (7-26-00), Section 13 & 18, T156N, R62 & 63W, N 489333.06, E 2442485.44, coulee bottom elevation 1472.2 @ \perp of bridge.



E7 Downstream side of wood bridge, in fair condition, 5.5 feet of water (7-26-00), Section 13 & 18, T156N, R62 & 63W, N 489332.14, E 2442461.62, coulee bottom elevation 1473.2 @ \perp of bridge.



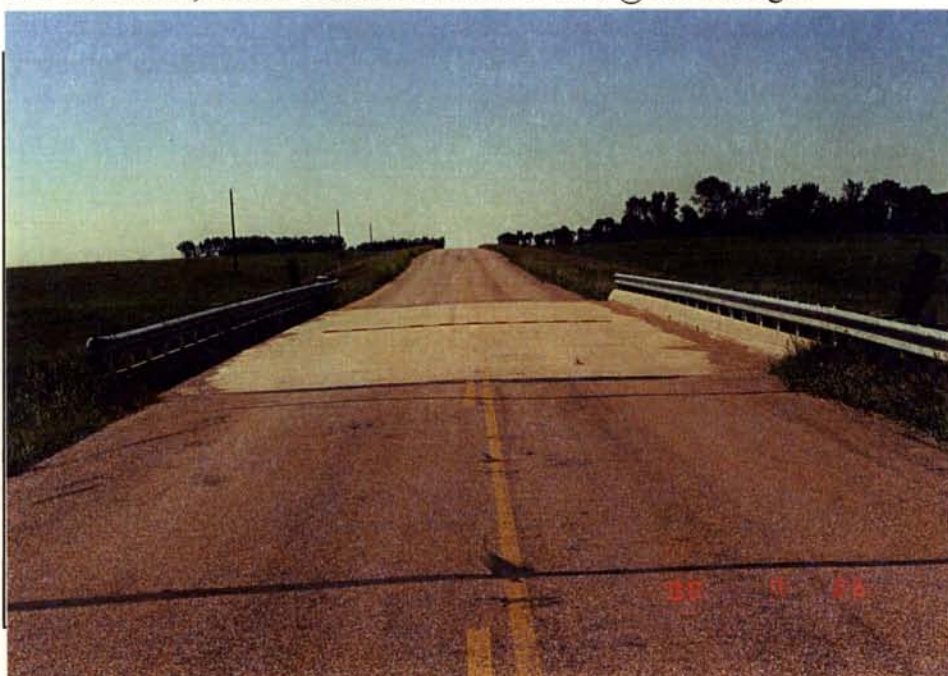
E7 Center of wood bridge, looking north, in fair condition, 24.0 feet wide & 25.0 feet long, Section 13 & 18, T156, R62 & 63W, N 489332.31, E 2442473.10, elevation 1482.6 @ center of bridge, top of wood.



E8 Upstream side of concrete bridge, in good condition, 5.3 feet of water (7-26-00), Section 17 & 18, T156N, R62W, N 492794.19, E 2447433.25, coulee bottom elevation 1476.5 @ Φ of bridge.



E8 Downstream side of concrete bridge, in good condition, 5.3 feet of water (7-26-00), Section 17 & 18, T156N, R62W, N 492793.35, E 2447403.22, coulee bottom elevation 1476.6 @ Φ of bridge.



E8 Center of concrete bridge, looking south, in good condition, 30.0 feet wide & 86.0 feet long, Section 17 & 18, T 156N, R62W, N 492793.65, E 2447418.27, elevation 1493.4 @ center of bridge, top of concrete.



E9 Upstream side of two 102" CMP'S, in good condition, 3.1 feet of water at east CMP & 3.0 feet of water at west of CMP (7-26-00), Section 8 & 17, T156N, R62W, N 494114.97, E 2450105.87, elevation 1480.3 @ invert of east CMP, N 494114.79, E 2450086.88, elevation 1480.3 @ invert of west CMP.



E9 Downstream side of two 102" CMP'S, in good condition, 3.0 feet of water at east CMP & 3.1 feet of water at west CMP (7-26-00), Section 8 & 17, T156N, R62W, N 494083.35, E 2450106.32, elevation 1480.4 @ invert of east CMP, N 494082.90, E 2450086.62, elevation 1480.4 @ invert of west CMP.



E9 Center of road crossing, between two 102" CMP'S, looking west,
Section 8 & 17, T156N, R62W, N 494098.89, E 2450094.90,
elevation 1490.7 @ center of road crossing, between CMP'S.



E10 Upstream side of concrete bridge, in fair condition, 3.5 feet of water
(7-26-00), Section 8 & 9, T156N, R62W, N 498611.82, E 2452578.83,
coulee bottom elevation 1483.4 @ \perp of bridge.



E10 Downstream side of concrete bridge, in fair condition, 3.1 feet of water (7-25-00), Section 8 & 9, T156N, R62W, N 498610.94, E 2452561.80, coulee bottom elevation 1483.8 @ ∇ of bridge.



E10 Center of concrete bridge, looking north, in fair condition, 17.0 feet wide & 29.7 feet long, Section 8 & 9, T156N, R62W, N 498611.50, E 2452570.25, elevation 1491.1 @ center of bridge, top of concrete.



E11 Upstream side of wood bridge, in fair condition, 5.8 feet of water (7-26-00), Section 3 & 4, T156N, R62W, N 502535.49, E 2457751.40, coulee bottom elevation 1484.7 @ \perp of bridge.



E11 Downstream side of wood bridge, in fair condition, 5.2 feet of water (7-26-00), Section 3 & 4, T156N, R62W, N 502534.23, E 2457725.35, coulee bottom elevation 1485.4 @ \perp of bridge.



E11 Center of wood bridge, looking north, in fair condition, 26.2 feet wide & 36.3 feet long, Section 3 & 4, T156N, R62W, N 502535.12, E 2457738.48, elevation 1496.4 @ center of bridge, top of gravel.



E12 Upstream side of concrete bridge, in fair condition, 3.0 feet of water (7-26-00), Section 35 & 3, T156 & 157N, R62W, N 505373.89, E 2458539.89, coulee bottom elevation 1489.0 @ Φ of bridge.



E12 Downstream side of concrete bridge, in fair condition, 3.3 feet of water (7-26-00), Section 35 & 3, T156 & 157N, R63W, N 505356.30, E 2458540.11, coulee bottom elevation 1488.6 @ \perp of bridge.



E12 Center of concrete bridge, looking west, in fair condition, 18.1 feet wide & 24.0 feet long, Section 35 & 3, T156 & 157N, R62W, N 505365.06, E 2458539.81, elevation 1496.2 @ center of bridge, top of concrete.



E13 Upstream side of three 84" CMP'S, in good condition, 3.0 feet, 3.1 feet & 3.3 feet of water north to south (7-26-00), Section 35 & 36, T157N, R62W, N 510749.34, E 2461407.48, elevation 1491.2 @ invert of north CMP, N 510735.77, E 2461408.59, elevation 1491.0 @ invert of center CMP, N 510721.81, E 2461410.70, elevation 1490.8 @ invert of south CMP.



E13 Downstream side of three 84" CMP'S, in good condition, 3.0 feet, 3.1 feet & 3.3 feet of water north to south (7-26-00), Section 35 & 36, T157N, R62W, N 510743.13, E 2461367.77, elevation 1491.4 @ invert of north CMP, N 510729.83, E 2461369.80, elevation 1491.1 @ invert of center CMP, N 510716.15, E 2461372.01, elevation 1491.0 @ invert of south CMP.



E13 Center of road crossing w/three 84" CMP'S, looking south from center CMP, Section 35 & 36, T157N, R62W, N 510732.66, E 2461388.46, elevation 1500.0 @ center of road crossing, above center CMP.



E14 Upstream side of two 96" CMP'S, in good condition, 6.8 feet of water at east CMP & 7.5 feet of water at west CMP (7-27-00), Section 25 & 36, T157N, R62W, N 510783.84, E 2465213.94, elevation 1490.0 @ invert of east CMP, N 510783.22, E 2465204.17, elevation 1489.3 @ invert of west CMP.



E14 Downstream side of two 96" CMP'S, in good condition, 8.0 feet of water at both CMP'S (7-27-00), Section 25 & 36, T157N, R62W, N 510833.61, E 2465213.74, elevation 1488.8 @ invert of east CMP, N 510833.82, E 2465202.77, elevation 1488.8 @ invert of west CMP.



E14 Center of road crossing, looking west, between two 96" CMP'S, Section 25 & 36, T157N, R62W, N 510809.19, E 2465208.17, elevation 1500.6 @ center of road crossing, top of gravel.

(Crossing E15 is located on pages 35 and 36.)



E16 Upstream side of wood bridge, in fair condition, 5.1 feet of water (7-27-00), Section 31 & 32, T157N, R61W, N 507796.39, E 2472026.12, coulee bottom elevation 1492.5 @ ∇ of bridge.



E16 Downstream side of wood bridge, in fair condition, 3.3 feet of water (7-26-00), Section 31 & 32, T157N, R61W, N 507795.35, E 2472001.92, coulee bottom elevation 1494.3 @ ∇ of bridge.



E16 Center of wood bridge, in fair condition, looking north, 24.3 feet wide & 24.3 feet long, Section 31 & 32, T157N, R61W, N 507796.13, E 2472014.07, elevation 1503.1 @ center of bridge, top of gravel.



E17 Upstream side of two 96" CMP'S, in good condition, 3.6 feet of water at north CMP & 3.8 feet of water at south CMP (7-27-00), Section 32 & 33, T157N, R61W, N 508498.86, E 2477328.28, elevation 1494.6 @ invert of north CMP, N 508484.43, E 2477328.20, elevation 1494.4 @ invert of south CMP.



E17 Downstream side of two 96" CMP'S, in good condition, 3.4 feet of water at north CMP & 4.0 feet of water at south CMP (7-27-00), Section 32 & 33, T157N, R62W, N 508498.65, E 2477278.46, elevation 1494.8 @ invert of north CMP, N 508484.46, E 2477278.50, elevation 1494.3 @ invert of south CMP.



E17 Center of road crossing, looking north, between two 96" CMP'S, Section 32 & 33, T157N, R62W, N 508492.63, E 2477302.75, elevation 1504.1 @ center of road crossing, top of gravel.



E18 Upstream side of two 96" CMP'S, in good condition, 2.6 feet of at east CMP & 2.4 feet of water at west CMP (7-27-00), Section 28 & 33, T157N, R61W, N 511181.23, E 2479231.62, elevation 1496.2 @ invert of east CMP, N 511180.96, E 2479211.06, elevation 1496.5 @ invert of west CMP.



E18 Downstream side of two 96" CMP'S, in good condition, 2.5 feet of water east CMP & 2.2 feet of water at west CMP (7-27-00), Section 28 & 33, T157N, R61W, N 511131.45, E 2479233.28, elevation 1496.4 @ invert of east CMP, N 511131.20, E 2479213.22, elevation 1496.7 @ invert of west CMP.



E18 Center of road crossing, looking west, between two 96" CMP'S, Section 28 & 33, T157N, R61W, N 511156.08, E 2479223.44, elevation 1506.2 @ center of road crossing, top of gravel.



E19 Upstream side of wood bridge, in fair condition, 2.6 feet of water (7-27-00), Section 27 & 28, T157N, R61W, N 512598.37, E 2482505.02, coulee bottom elevation 1498.3 @ \perp of bridge.



E19 Downstream side of wood bridge, in fair condition, 3.3 feet of water (7-27-00), Section 27 & 28, T157N, R61W, N 512597.14, E 2482475.27, coulee bottom elevation 1497.5 @ Φ of bridge.



E19 Center of wood bridge, in fair condition, looking north, 30.0 feet wide & 42.5 feet long, Section 27 & 28, T157N, R61W, N 512597.99, E 2482490.26, elevation 1508.1 @ center of bridge, top of asphalt.



E20 Upstream side of wood bridge, in fair condition, 4.3 feet of water (7-27-00), Section 26 & 27, T157N, R61W, N 516322.49, E 2487701.66, coulee bottom elevation 1498.1 @ Φ of bridge.



E20 Downstream side of wood bridge, in fair condition, 4.1 feet of water (7-27-00), Section 26 & 27, T157N, R61W, N 516322.05, E 2487681.94, coulee bottom elevation 1498.2 @ Φ of bridge.



E20 Center of wood bridge, in fair condition, looking north, 20.0 feet wide & 29.7 feet long, Section 26 & 27, T157N, R61W, N 516322.23, E 2487691.69, elevation 1506.9 @ center of bridge, top of wood.



E21 Upstream side of one 48" CMP, in good condition, 28.35 feet north of bridge @ E20, no water (7-27-00), Section 26 & 27, T157N, R61W, N 516366.70, E 2487709.01, elevation 1502.5 @ invert of CMP.



E21 Downstream side of one 48" CMP, in good condition, 28.35 feet north of bridge @ E20, no water (7-27-00), Section 26 & 37, T157N, R61W, N 516363.75, E 2487672.01, elevation 1502.3 @ invert of CMP.



E21 Center of trail crossing, looking south, 28.35 feet north of bridge @ E20, Section 26 & 27, T157N, R61W, N 516365.73, E 2487690.78, elevation 1506.9 @ center of trail, top of gravel.



E22 Upstream side of wood bridge, in fair condition, 4.2 feet of water (7-27-00), Section 23 & 26, T157N, R61W, N 516710.18, E 2490126.60, coulee bottom elevation 1498.3 @ Φ of bridge.



E22 Downstream side of wood bridge, in fair condition, 4.1 feet of water (7-27-00), Section 23 & 26, T157N, R61W, N 516682.35, E 2490126.68, coulee bottom elevation 1498.3 @ Φ of bridge.



E22 Center of wood bridge, in fair condition, looking east, 28.0 feet wide & 40.0 feet long, Section 23 & 26, T157N, R61W, N 516696.18, E 2490127.15, elevation 1511.7 @ center of bridge, top of gravel.



E23 Upstream side of concrete bridge, in good condition, 0.4 feet of water (7-28-00), Section 13 & 24, T157N, R61W, N 522091.58, E 2493379.08, coulee bottom elevation 1507.2 @ \perp of bridge.



E23 Downstream side of concrete bridge, in good condition, 0.7 feet of water (7-28-00), Section 13 & 24, T157N, R61W, N 522053.19, E 2493380.22, coulee bottom elevation 1506.7 @ \perp of bridge.



E23 Center of concrete bridge, looking west, in good condition, 39.0 feet wide & 45.0 feet long, Section 13 & 24, T157N, R61W, N 522072.28, E 2493379.29, elevation 1516.8 @ center of bridge, top of asphalt.



E24 Upstream side of double cell 8 foot box culvert, in good condition, 1.8 feet of water (7-28-00), Section 13 & 24, T157N, R61W, N 522089.11, E 2492924.13, coulee bottom elevation 1506.5 @ \perp of box culvert. E24 is located 400' west of bridge E23.



E24 Downstream side of double cell 8 foot box culvert, in good condition, 1.5 feet of water (7-28-00), Section 13 & 24, T157N, R61W, N 522037.44, E 2492925.74, coulee bottom elevation 1506.6 @ \perp of box culvert.



E24 Center of road crossing of 17.0 feet wide, & 52.0 feet long box culvert, in good condition, looking west, 400 feet west of bridge (E23), Section 13 & 14, T157N, R61W, N 522061.39, E 2492924.58, elevation 1516.8 @ center of road, top of asphalt.



E15 Upstream side of 6 CMP'S, north to south (36", 48", 24", 24", 48" & 48"), 0.7 feet, 1.3 feet, 2.0 feet, 2.2 feet, 2.4 feet & 2.6 feet of water (7-31-00), north to south, Section 36 & 3 1, T157N, R61 & 62W, N 510340.39, E 2466699.58, elevation 1495.9 @ invert of 36" CMP, N 510332.78, E 2466699.91, elevation 1495.3 @ invert of 48" CMP, N 510324.70, E 2466705.74, elevation 1494.5 @ invert of 24" CMP, N 510318.01, E 2466704.72, elevation 1494.4 @ invert of 24" CMP, N 510306.29, E 2466703.64, elevation 1494.1 @ invert of 48" CMP, N 510301.50, E 2466703.45, elevation 1493.9 @ invert of 48" CMP.



E15 Downstream side of 6 CMP'S, north to south (36", 48", 24", 24", 48" & 48"), 2.7 feet, 2.8 feet, 2.4 feet, 2.7 feet, 2.6 feet & 2.7 feet of water (7-31-00), north to south, Section 36 & 31, T157N, R61 & 62W, N 510336.62, E 2466658.34, elevation 1493.8 @ invert of 36" CMP, N 510329.93, E 2466658.71, elevation 1493.7 @ invert of 48" CMP, N 510324.77, E 2466660.69, elevation 1494.1 @ invert of 24" CMP, N 510318.57, E 2466660.27, elevation 1493.9 @ invert of 24" CMP, N 510307.56, E 2466662.16, elevation 1494.0 @ invert of 48" CMP, N 510302.26, E 2466662.16, elevation 1493.9 @ invert of 48" CMP.



E15 Center of trail crossing, looking south, between 6 CMP'S, Section 36 & 31, T157N, R61 & 62W, N 510320.93, E 2466680.42, elevation 1499.5 @ center of trail crossing, top of gravel.



E24B Upstream side of wood railroad bridge, in good condition, 3.8 feet of water (8-9-00), Section 13, T157N, R61W, N 522990.32, E 2494032.49, coulee bottom elevation 1506.1 @ \perp of wood railroad bridge.



E24B Downstream side of wood railroad bridge, in good condition, 4.7 feet of water (8-9-00), Section 13, T157N, R61N, N 522980.30, E 2494022.44, coulee bottom elevation 1505.0 @ \perp of wood railroad bridge.



E24B Center of wood railroad bridge, 14.3 feet wide and 82.5 feet long, in good condition, looking S/E, Section 13, T157N, R61W, N 522983.42, E 2494025.88, elevation 1507.2 @ center of bridge, between rails, top of wood.



E25 Upstream side of wood bridge, in fair condition, 3.2 feet of water (8-1-00), Section 7 & 12, T157N, R60 & 61W, N 530511.89, E 2497899.05, coulee bottom elevation 1510.5 @ \perp of bridge.



E25 Downstream side of wood bridge, in fair condition, 3.6 feet of water (8-1-00), Section 7 & 12, T157N, R60 & 61W, N 530511.28, E 2497870.57, coulee bottom elevation 1510.1 @ \perp of bridge.



E25 Center of wood bridge, looking north, in fair condition, 28.0 feet wide & 35.6 feet long, Section 7 & 12, T157N, R60 & 61W, N 530511.43, E 2497884.90, elevation 1523.0 @ center of bridge, top of gravel.



E26 Upstream side of wood bridge, in fair condition, 3.7 feet of water (8-1-00), Section 6 & 7, T157N, R60W, N 532786.15, E 2499111.64, coulee bottom elevation 1513.1 @ \perp of bridge.



E26 Downstream side of wood bridge, in fair condition, 4.3 feet of water (8-1-00), Section 6 & 7, T157N, R60W, N 532764.18, E 2499112.01, coulee bottom elevation 1512.4 @ \perp of bridge.



E26 Center of wood bridge, looking west, in fair condition, 22.1 feet wide & 30.1 feet long (at north end), Section 6 & 7, T157N, R60W, N 532775.17, E 2499111.75, elevation 1522.5 @ center of bridge, top of gravel.



E27 Upstream side of wood bridge, in fair condition, 6.1 feet of water (8-1-00), Section 31 & 6, T157 & 158N, R60W, N 538056.64, E 2498999.95, coulee bottom elevation 1515.6 @ Φ of bridge.



E27 Downstream side of wood bridge, in fair condition, 5.8 feet of water (8-1-00), Section 31 & 6, T157 & 158N, R60W, N 538030.42, E 2499000.61, coulee bottom elevation 1515.9 @ Φ of bridge.



E27 Center of wood bridge, looking west, in fair condition, 26.3 feet wide & 26.3 feet long, Section 31 & 6, T157 & 158N, R60W, N 538043.52, E 2499000.31, elevation 1526.9 @ center of bridge, top of gravel.



E28 Upstream side of double cell round concrete coated 60" CMP, in fair condition, 2.4 feet of water (8-1-00), Section 36 & 31, T158N, R60 & 61W, N 539227.20, E 2497652.78, elevation 1520.6 @ center of round concrete culverts, top of gravel bed, not inverts.



E28 Downstream side of double cell round concrete coated 60" CMP, in fair condition, 3.2 feet of water (8-1-00), Section 36 & 31, T158N, R60 & 61W, N 539228.91, E 2497680.80, elevation 1519.6 @ center of round concrete culverts, top of gravel bed, not inverts.



E28 Center of double cell round concrete coated 60" CMP, in fair condition, 24.0 feet wide & 29.0 feet long, Section 36 & 31, T158N, R60 & 61W, N 539227.89, E 2497667.01, elevation 1527.4 @ center of road crossing, top of gravel.



E29 Upstream side of 3-cell round 60" concrete culverts, in fair condition, from north to south 0.0, 0.3, & 0.7 feet of water (8-1-00), Section 36 & 31, T158N, R60 & 61W, N 539473.27, E 2497640.48, elevation 1522.7 @ invert of north pipe, N 539464.32, E 2497640.85, elevation 1522.5 @ invert of middle pipe, N 539455.29, E 2497641.06, elevation 1522.0 @ invert of south pipe.



E29 Downstream side of 3-cell round 60" concrete culverts, in fair condition, from north to south 0.1, 0.1 & 0.1 feet of water (8-1-00), Section 36 & 31, T158N, R60 & 61W, N 539474.88, E 2497680.80, elevation 1522.7 @ invert of north pipe, N 539467.11, E 2497680.95, elevation 1522.7 @ invert of middle pipe, N 539457.29, E 2497681.13, elevation 1522.7 @ invert of south pipe.



E29 Center of 3-cell round concrete culverts, in fair condition, 32.6 feet wide & 40.4 feet long, Section 36 & 31, T158N, R60 & 61W, N 539465.25, E 2497661.10, elevation 1528.3 @ center of road crossing, top of gravel.



E30 Upstream side of concrete & wood bridge, in fair condition, 2.7 feet of water (8-1-00), Section 25 & 36, T158N, R61W, N 543253.26, E 2496562.90, coulee bottom elevation 1522.1 @ Φ of bridge.



E30 Downstream side of concrete & wood bridge, in fair condition, 3.1 feet of water (8-1-00), Section 25 & 36, T158N, R61W, N 543230.65, E 2496564.06, coulee bottom elevation 1521.5 @ Φ of bridge.



E30 Center of concrete & wood bridge, looking west, in fair condition, 23.4 feet wide & 24.0 feet long, Section 25 & 36, T158N, R61W, N 543241.99, E 2496563.45, elevation 1529.5 @ center of bridge, top of gravel.



E31 Upstream side of two 84" CMP'S, east to west, 1.0 & 1.1 feet of water (8-1-00), Section 24 & 25, T158N, R61W, N 548548.52, E 2495418.30, elevation 1527.2 @ invert of east 86" CMP, N 548548.68, E 2495401.96, elevation 1527.1 @ invert of west 86" CMP.



E31 Downstream side of two 84" CMP'S, east to west, 1.3 & 1.4 feet of water (8-1-00), Section 24 & 25, T158N, R61W, N 548501.09, E 2495419.39, elevation 1526.8 @ invert of east 84" CMP, N 548500.98, E 2495402.93, elevation 1526.8 @ invert of west 84" CMP.



E31 Center of two 84" CMP'S, looking west, Section 24 & 25, T158N, R61W, N 548525.19, E 2495411.04, elevation 1539.4 @ center of road crossing, top of asphalt.



E32 Upstream side of seven CMP'S, north to south, two 48" & five 60", in fair condition, 2.0, 3.6, 3.5, 3.5, 3.1, 3.3 & 2.5 feet of water (8-2-00), Section 13 & 14, T158N, R61W, N 555716.44, E 2491934.09, elevation 1530.0 @ invert of 48" CMP, N 555703.86, E 2491934.01, elevation 1528.5 @ invert of 48" CMP, N 555694.07, E 2491933.93, elevation 1528.7 @ invert of 60" CMP, N 555681.93, E 2491933.57, elevation 1528.5 @ invert of 60" CMP, N 555669.89, E 2491933.20, elevation 1529.0 @ invert of 60" CMP, N 555657.92, E 2491932.53, elevation 1528.0 @ invert of 60" CMP, N 555635.71, E 2491936.12, elevation 1529.6 @ invert of 60" CMP.



E32 Downstream side of seven CMP'S, north to south, two 48" & five 60", in fair condition, 1.8, 3.2, 3.3, 3.4, 3.2, 3.5, & 2.5 feet of water (8-2-00), Section 13 & 14, T158N, R61W, N 555706.17, E 2491983.71, elevation 1530.3 @ invert of 48" CMP, N 555692.28, E 2491987.09, elevation 1528.9 @ invert of 48" CMP, N 555682.75, E 2491986.56, elevation 1528.7 @ invert of 60" CMP, N 555670.75, E 2491986.76, elevation 1528.8 @ invert of 60" CMP, N 555658.80, E 2491986.21, elevation 1528.9 @ invert of 60" CMP, N 555646.31, E 2491985.56, elevation 1528.6 @ invert of 60" CMP, N 555624.92, E 2491978.66, elevation 1529.6 @ invert of 60" CMP.



E32 Center of seven CMP'S @ an angle, N/W to S/E, looking north, Section 13 & 14, T158N, R61W, N 555677.25, E 2491956.96, elevation 1531.9 @ center of road crossing, top of gravel.



E33 Upstream side of concrete bridge, in fair condition, 3.2 feet of water (8-2-00), Section 11 & 14, T158N, R61W, N 558946.11, E 2489059.80, coulee bottom elevation 1533.1 @ \perp of bridge.



E33 Downstream side of concrete bridge, in fair condition, 3.4 feet of water (8-2-00), Section 11 & 14, T158N, R61W, N 558926.62, E 2489060.37, coulee bottom elevation 1532.7 @ \perp of bridge.



E33 Center of concrete bridge, looking west, in fair condition, 20.0 feet wide & 16.0 feet long, Section 11 & 14, T158N, R61W, N 558936.32, E 2489060.09, elevation 1542.0 @ center of bridge, top of gravel.



E34 Upstream side of double-cell 6.5 foot high box culvert, in good condition, 3.0 feet of water (8-2-00), Section 34 & 3, T158 & 159N, R61W, N 569429.59, E 2486204.17, coulee bottom elevation 1538.9 @ ∇ of culvert.



E34 Downstream side of double cell, 6.5 foot high box culvert, in good condition, 3.2 feet of water (8-2-00), Section 34 & 3, T158 & 159N, R61W, N 569394.34, E 2486205.45, coulee bottom elevation 1538.8 @ ∇ of box.



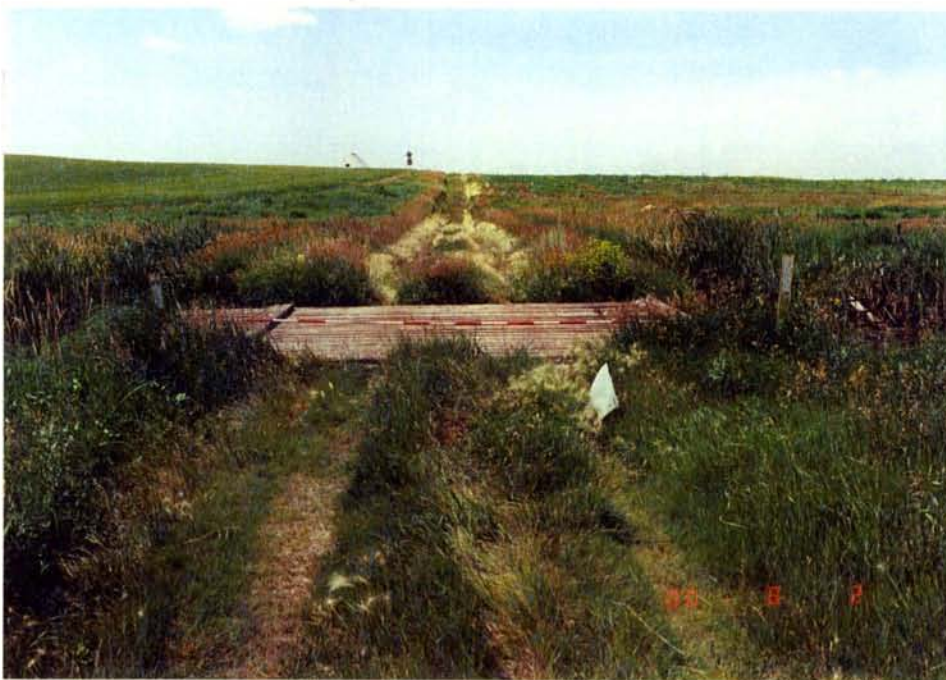
E34 Center of road crossing of 21.5 feet wide & 36.0 feet long box culvert, looking west, in good condition, Section 34 & 3, T158 & 159N, R61W, N 569412.18, E 2486205.41, elevation 1547.4 @ center of road crossing, top of gravel.



E35 Upstream side of wood bridge, in poor condition, 4.2 feet of water (8-2-00), Section 27 & 34, T159N, R61W, N 574683.82, E 2485421.59, coulee bottom elevation 1539.6 @ \perp of bridge.



E35 Downstream side of wood bridge, in poor condition, 4.0 feet of water (8-2-00), Section 27 & 34, T159N, R61W, N 574664.44, E 2485421.86, coulee bottom elevation 1539.9 @ \perp of bridge.



E35 Center of wood bridge, looking west, in poor condition, 19.9 feet wide & 23.3 feet long, Section 27 & 34, T159N, R61W, N 574674.02, E 2485421.73, elevation 1547.4 @ center of bridge, top of wood.



E36 Upstream side of wood bridge, in fair condition, 2.8 feet of water (8-2-00), Section 23 & 26, T159N, R61W, N 580006.46, E 2486546.20, coulee bottom elevation 1545.1 @ Φ of bridge.



E36 Downstream side of wood bridge, in fair condition, 2.8 feet of water (8-2-00), Section 23 & 26, T159N, R61W, N 579986.33, E 2486546.78, coulee bottom elevation 1544.9 @ \perp of bridge.



E36 Center of wood bridge, looking west, in fair condition, 20.0 feet wide & 17.0 feet long, Section 23 & 26, T159N, R61W, N 579996.24, E 2486546.31, elevation 1552.6 @ center of bridge, top of gravel.



E37 Upstream side of two 48" CMP'S, west to east 0.1 feet & 0.2 feet of water (8-2-00), Section 15 & 22, T159N, R61W, N 585265.70, E 2485403.00, elevation 1552.8 @ invert of west 48" CMP, N 585266.47, E 2485409.60, elevation 1552.7 @ invert of east 48" CMP.



E37 Downstream side of two 48" CMP'S, west to east 0.0 & 0.3 feet of water (8-2-00), Section 15 & 22, T159N, R61W, N 585221.88, E 2485404.20, elevation 1552.9 @ invert of west 48" CMP, N 585222.59, E 2485411.39, elevation 1552.6 @ invert of east 48" CMP.



E37 Center of two 48" CMP'S, looking east, Section 15 & 22, T159N, R61W, N 585241.95, E 2485407.16, elevation 1559.6 @ center of road crossing, top of gravel.



ET1 Upstream side of concrete bridge, in fair condition, 4.2 feet of water (8-3-00), Section 7 & 12, T155N, R62 & 63W, N 467069.91, E 2443102.34, coulee bottom elevation 1459.3 @ \perp of bridge.



ET1 Downstream side of concrete bridge, in fair condition, 4.0 feet of water (8-3-00), Section 7 & 12, T155N, R62 & 63W, N 467067.14, E 2443079.54, coulee bottom elevation 1459.5 @ \perp of bridge.



ET1 Center of concrete bridge, looking north, in fair condition, 22.8 feet wide & 28.8 feet long, Section 7 & 12, T155N, R62 & 63W, N 467068.57, E 2443091.18, elevation 1470.6 @ center of bridge, top of gravel.



ET2 Upstream side of two 72" CMP'S, north to south, 0.0 & 0.0 feet of water (8-3-00), Section 5 & 6, T155N, R62W, N 471957.14, E 2447958.84, elevation 1469.0 @ invert of north 72" CMP, N 471942.39, E 2447961.49, elevation 1469.2 @ invert of south 72" CMP.



ET2 Downstream side of two 72" CMP'S, north to south, 0.0 & 0.0 feet of water (8-3-00), Section 5 & 6, T155N, R62W, N 471919.99, E 2447897.23, elevation 1468.7 @ invert of north 72" CMP, N 471905.89, E 2447899.43, elevation 1468.9 @ invert of south 72" CMP.



ET2 Center of two 72" CMP'S, looking north, Section 5 & 6, T155N, R62W, N 471932.61, E 2447929.13, elevation 1476.8 @ Center of road crossing, top of asphalt.



ET3 Upstream side of two 96" CMP'S, in fair condition, east to west 1.7 & 1.8 feet of water (8-3-00), Section 32 & 6, T155 & 156N, R62W, N 472928.96, E 2448471.65, elevation 1467.8 @ invert of east 96" CMP, N 472928.75, E 2448456.17, elevation 1467.8 @ invert of west 96" CMP.



ET3 Downstream side of two 96" CMP'S, in fair condition, east to west 1.7 & 1.8 feet of water (8-3-00), Section 32 & 6, T155N & 156N, R62W, N 472879.31, E 2448466.47, elevation 1467.8 @ invert of east 96" CMP, N 472879.12, E 2448450.70, elevation 1467.7 @ invert of west 96" CMP.



ET3 Center of two 96" CMP'S, looking east to west, in fair condition, Section 32 & 6, T155 & 156N, R62W, N 472905.00, E 2448461.24, elevation 1477.6 @ center of road crossing, top of gravel.



ET4 Upstream side of wood bridge, in fair condition, 3.8 feet of water (8-3-00), Section 32 & 33, T156N, R62W, N 476534.41, E 2453094.91, coulee bottom elevation 1471.1 @ \perp of bridge.



ET4 Downstream side of wood bridge, in fair condition, 1.9 feet of water (8-3-00), Section 32 & 33, T156N, R62W, N 476534.24, E 2453071.67, coulee bottom elevation 1473.0 @ \perp of bridge.



ET4 Center of wood bridge, looking south, in fair condition, 24.2 feet wide & 15.2 feet long, Section 32 & 33, T156N, R62W, N 476534.35, E 2453083.21, elevation 1470.6 @ center of bridge, top of gravel.



ET5 Upstream side of three 60" CMP'S, in fair condition, north to south 0.3, 0.8, 0.0 feet of water (8-3-00), Section 33 & 34, T156N, R62W, N 475992.92, E 2458438.72, elevation 1476.9 @ invert of north CMP, N 475972.94, E 2458431.24, elevation 1476.8 @ invert of middle CMP, N 475960.45, E 2458431.65, elevation 1476.8 @ invert of south CMP.



ET5 Downstream side of three 60" CMP'S, in fair condition, north to south 0.1, 0.0 & 0.0 feet of water (8-3-00), Section 33 & 34, T156N, R62W, N 475990.39, E 2458390.37, elevation 1477.2 @ invert of north CMP, N 475973.02, E 2458400.86, elevation 1477.1 @ invert of middle CMP, N 475960.72, E 2458401.16, elevation 1476.2 @ invert of south CMP.



ET5 Center of three 60" CMP'S, looking north, in fair condition, Section 33 & 34, T156N, R62W, N 475973.22, E 2458415.03, elevation 1485.6 @ center of road crossing, top of gravel.



ET6 Upstream side of wood bridge, in fair condition, 0.0 feet of water (8-3-00), Section 34 & 35, T156N, R62W, N 476915.03, E 2463664.23, coulee bottom elevation 1480.9 @ ∇ of bridge.



ET6 Downstream side of wood bridge, in fair condition, 0.0 feet of water (8-3-00), Section 34 & 35, T156N, R62W, N 476912.98, E 2463639.76, coulee bottom elevation 1480.9 @ ∇ of bridge.



ET6 Center of wood bridge, in fair condition, looking north, 24.2 feet wide & 18.0 feet long, Section 34 & 35, T156N, R62W, N 476914.21, E 2463652.16, elevation 1488.0 @ center of bridge, top of gravel.



ET7 Upstream side of double cell 7' box culvert, in good condition, 0.0 feet of water (8-3-00), Section 26 & 35, T156N, R62W, N 478645.02, E 2465155.82, coulee bottom elevation 1483.9 @ ∇ of culvert.



ET7 Downstream side of double cell 7' box culvert, in good condition, 0.0 feet of water (8-3-00), Section 26 & 35, T156N, R62W, N 478563.17, E 2465157.67, coulee bottom elevation 1483.7 @ ∇ of box culvert.



ET7 Center of road crossing of 15.2 feet wide & 82.0 feet long box culvert, looking west, in good condition, Section 26 & 35, T156N, R62W, N 478603.56, E 2465157.41, elevation 1499.5 @ center of road crossing, top of asphalt.



ET8 Upstream side of two 96" CMP's, in fair condition, west to east, 2.5 & 2.5 feet of water (8-9-00), Section 19 & 30, T156N, R61W, N 484214.19, E 2477210.35, elevation 1486.2 @ invert of west CMP, N 484211.30, E 2477242.01, elevation 1486.3 @ invert of east CMP.



ET8 Downstream side of two 96" CMP's, in fair condition, west to east, 2.4 & 1.9 feet of water (8-9-00), Section 19 & 30, T156N, R61W, N 484184.78, E 2477197.36, elevation 1486.3 @ invert of west CMP, N 484182.89, E 2477226.66, elevation 1486.7 @ invert of east CMP.



ET8 Center of two 96" CMP'S, looking east, in fair condition, Section 19 & 30, T156N, R61W, N 484200.35, E 2477218.03, elevation 1496.0 @ center of trail crossing, top of gravel.



ET9 Upstream side of a one cell 9' box culvert, in good condition, no water (8-9-00), Section 19 & 20, T156N, R61W, N 484827.26, E 2479280.38, coulee bottom elevation 1488.8 @ Φ of box culvert.



ET9 Downstream side of a one cell 9' box culvert, in good condition, 0.1 feet of water (8-9-00), Section 19 & 20, T156N, R61W, N 484826.01, E 2479215.90, coulee bottom elevation 1488.7 @ Φ of box culvert.



ET9 Center of road crossing of 15.3 feet wide & 64.4 feet long box culvert, in good condition, looking north, Section 19 & 20, T156N, R61W, N 484826.42, E 2479247.29, elevation 1504.1 @ center of road crossing, top of asphalt.



ET10 Upstream side of wood bridge, in fair condition, 0.5 feet of water (8-9-00), Section 20 & 21, T156N, R61W, N 488490.98, E 2484457.85, coulee bottom elevation 1491.8 @ \perp of wood bridge.



ET10 Downstream side of wood bridge, in fair condition, 0.1 feet of water (8-9-00), Section 20 & 21, T156N, R61W, N 488489.83, E 2484433.27, coulee bottom elevation 1492.3 @ \perp of wood bridge.



ET10 Center of wood bridge, in fair condition, looking north, 24.2 feet wide & 19.2 feet long, Section 20 & 21, T156N, R61W, N 488490.38, E 2484445.47, elevation 1500.5 @ center of bridge, top of wood.



ET11 Upstream side of wood bridge, in fair condition, 0.0 feet of water (8-10-00), Section 26 & 27, T156N, R61W, N 481704.96, E 2495200.27, coulee bottom elevation 1493.9 @ \perp of wood bridge.

ET11 Center of wood bridge, in fair condition, looking south, 25.5 feet wide & 24.3 feet long, Sec. 26 & 27, T156N, R61W, N 481704.96, E 2495187.47, elevation 1501.0 @ center of bridge, top of gravel.



ET11 Downstream side of wood bridge, in fair condition, 0.0 feet of water (8-10-00), Section 26 & 27, T156N, R61W, N 481704.27, E 2495174.67, coulee bottom elevation 1494.2 @ \perp of wood bridge.



ET11 Center of wood bridge, in fair condition, looking north, 25.5 feet wide & 24.3 feet long, Section 26 & 27, T156N, R61W, N 481704.59, E 2495187.47, elevation 1501.0 @ center of bridge, top of gravel.



ET12 Upstream side of two CMP'S, 36" & 42", in good condition, looking east to west, no water (8-10-00), Section 25 & 36, T156N, R61W, N 479566.76, E 2504763.13, elevation 1495.7 @ invert of 36" CMP, N 479567.61, E 2504736.38, elevation 1496.9 @ invert of 42" CMP, crossing ET12 is 142 feet west of crossing ET13.



ET12 Downstream side of two CMP'S, in good condition, 36" & 42", looking east to west, no water (8-10-00), Section 25 & 36, T156N, R61W, N 479635.96, E 2504760.74, elevation 1495.4 @ invert of 36" CMP, N 479630.64, E 2504737.61, elevation 1496.7 @ invert of 42" CMP.



ET12 Center of two CMP'S, looking west, in good condition, 142' west of ET13, Section 25 & 36, T156N, R61W, N 479598.81, E 2504749.86, elevation 1504.5 @ center of road crossing, top of asphalt.



ET13 Upstream side of one 36" CMP, in good condition, no water (8-10-00), Section 25 & 36, T156N, R61W, N 479570.81, E 2504907.80, elevation 1496.2 @ invert of CMP.



ET13 Downstream side of one 36" CMP, in good condition, no water (8-10-00), Section 25 & 36, T156N, R61W, N 479635.76, E 2504863.66, elevation 1495.8 @ invert of CMP.



ET13 Center of one 36" CMP, looking west, in good condition, 142' east of ET12, Section 25 & 36, T156N, R61W, N 479602.43, E 2504884.17, elevation 1504.2 @ center of road crossing, top of asphalt.



ET14 Upstream side of two 60" CMP'S, in good condition, east to west, 0.8 & 1.1 feet of water (8-10-00), Section 31 & 6, T155 & 156N, R60W, N 474452.69, E 2510038.49, elevation 1496.2 @ invert of east CMP, N 474452.71, E 2510026.99, elevation 1496.0 @ invert of west CMP.



ET14 Downstream side of two 60" CMP'S, in good condition, east to west, 1.5 & 1.2 feet of water (8-10-00), Section 31 & 6, T155 & 156N, R60W, N 474493.45, E 2510038.06, elevation 1495.6 @ invert of east CMP, N 474493.05, E 2510026.22, elevation 1495.9 @ invert of west CMP.



ET14 Center of two 60" CMP'S, in good condition, east to west, Section 31 & 6, T155 & 156N, R60W, N 474472.56, E 2510032.03, elevation 1502.9 @ center of trail, top of gravel.



ET15 Upstream side of one 42" CMP, in good condition, 1.4 feet of water (8-10-00), Section 4 & 5, T155N, R60W, N 470046.19, E 2516501.59, elevation 1503.3 @ invert of CMP.



ET15 Downstream side of one 42" CMP, in good condition, 1.2 feet of water (8-10-00), Section 4 & 5, T155N, R60W, N 470045.54, E 2516436.68, elevation 1503.6 @ invert of CMP.



ET15 Center of one 42" CMP, looking north, in good condition, Section 4 & 5, T155N, R60W, N 470046.05, E 2516468.96, elevation 1515.4 @ center of road crossing, top of gravel.



ET16 Upstream side of two 30" concrete pipes, under railroad, in good condition, north to south, no water (8-10-00), Section 4, T155N, R60W, N 470962.04, E 2521859.48, elevation 1507.2 @ invert of north pipe, N 470956.28, E 2521859.84, elevation 1507.2 @ invert of south pipe.



ET16 Downstream side of two 30" concrete pipes, under railroad, in good condition, north to south, no water (8-10-00), Section 4, T155N, R60W, N 470960.83, E 2521806.55, elevation 1507.0 @ invert of north pipe, N 470954.94, E 2521807.19, elevation 1507.1 @ invert of south pipe.



ET16 Center of railroad crossing between two concrete pipes, in good condition, looking north, Section 4, T155N, R60W, N 470957.99, E 2521831.84, elevation 1517.2 @ center of railroad, between pipes, top of wood tie.



ET17 Upstream side of two 30" concrete pipes, in good condition, no water (8-10-00), north to south, Section 3 & 4, T155N, R60W, N 470976.13, E 2522006.37, elevation 1507.8 @ invert of north pipe, N 470959.73, E 2522006.84, elevation 1507.6 @ invert of south pipe.



ET17 Downstream side of two 30" concrete pipes, in good condition, north to south, no water (8-10-00), Section 3 & 4, T155N, R60W, N 470974.82, E 2521953.41, elevation 1507.1 @ invert of north pipe, N 470958.47, E 2521954.20, elevation 1507.3 @ invert of south pipe.



ET17 Center of highway crossing, between two concrete pipes, in good condition, looking north, Section 3 & 4, T155N, R60N, N 470967.45, E 2521981.94, elevation 1513.6 @ center of highway, top of asphalt.

Bench Marks Used
Datum NAD 83

	Designation	Latitude	Longitude	Ellipsoid Height	Description
1	BM P225	48° 07' 40.16716" N	98° 53' 35.33914" W	1379.176	NGS Cap
2	BM DRY AZ MARK	48° 08' 19.18256" N	98° 54' 54.2472" W	1484.100	NGS Cap
3	BM ROHRVILLE	48° 09' 04.45693" N	98° 38' 44.52851" W	1439.966	NGS Cap
4	TBM 00-4	48° 15' 08.99700" N	98° 43' 29.07750" W	1391.329	Rebar/Cap
5	BM GROAT	48° 20' 23.25880" N	99° 00' 23.11876" W	1391.612	NGS Cap
6	BM U273	48° 21' 59.97486" N	98° 37' 00.77319" W	1425.314	NGS Cap
7	BM B259	48° 26' 33.22403" N	98° 30' 21.69475" W	1440.470	NGS Cap
8	BM P258	48° 18' 09.73280" N	98° 22' 09.98135" W	1437.236	NGS Cap
9	BM P414	48° 36' 05.62286" N	98° 29' 33.35077" W	1485.034	NGS Cap
10	BM U414	48° 32' 56.79617" N	98° 30' 50.11674" W	1484.100	NGS Cap

* Bold numbering is current survey control held.

Bench Marks Used
Local Coordinates
Datum NAD 27 & NGVD 29

	Designation	Northing	Easting	Elevation	Description
1	BM P225	4158485.819	2392396.537	1456.60	NGS Cap
2	BM DRY AZ MARK	419327.151	2386951.242	1469.73	NGS Cap
3	BM ROHRVILLE	425382.427	2452607.189	1518.55	NGS Cap
4	TBM 00-4	461856.582	2432466.234	1469.72	Rebar/Cap
5	BM GROAT	498838.691	2363238.985	1468.63	NGS Cap
6	BM U273	504113.609	2457718.819	1504.36	NGS Cap
7	BM B259	532472.305	2483940.887	1520.14	NGS Cap
8	BM P258	482359.065	2518494.217	1517.19	NGS Cap
9	BM P414	590543.086	2485687.249	1564.87	NGS Cap
10	BM U414	571280.001	2481022.664	1563.83	NGS Cap

* Bold numbering is current survey control held.